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Policy Changes that Encourage Private Business Investment in Colombia

Mansoor Dailami

To sustain expansion of private business investment, Colombia should consider an investment tax credit, frequent forecasting of business variables (to reassure businessmen of the favorable climate for investment), a shift from historical cost accounting to replacement cost accounting, and preferential treatment for small and medium-size firms in the allocation of available capital.

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Private business investment has expanded remarkably in Colombia's recent economic recovery. Sustained expansion of this investment is considered crucial to continued economic growth and increases in production.

Having analyzed demand, the cost of capital, and the availability and allocation of investable funds, Dailami concludes the following:

- Motivating firms to expand capacity is a key requirement for continued expansion. Many firms are already operating at high capacity utilization rates. An investment tax credit designed to lower the effective price of capital goods would help to target investment expansion and hence would be desirable.

- Frequent forecasting of such variables as GDP, interest and exchange rates, and credit and monetary aggregates, would tend to improve the climate for investment by enabling the private sector to make informed decisions.

- The real (marginal) cost of capital to the nonfinancial corporate sector is high in Colombia: currently about 16 percent. Policy efforts that induce corporations to substitute equity for debt financing should lead to a more balanced corporate capital structure and possibly a lower overall cost of capital. The elimination of dividend income taxes as par. of the 1986 tax reform eliminated double taxation of capital and thus helped reduce the cost of equity financing. On the other hand, it prompted shareholders to pressure corporate management to distribute more dividends — which limits a corporation's ability to finance its investments internally.

- The cost of capital could also be reduced by shifting the tax treatment of depreciation a)w-ances away from historical cost accounting system toward a replacement cost accounting system.

- High inflation and low savings rates keep the prevailing lending rates high in Colombia — and it is generally easier for larger firms to get capital than for small and medium-size firms. There are at least two reasons why small and medium-size firms should get preferential treatment in allocation of available capital: (1) they tend to be concentrated in relatively more labor-intensive activities and sectors, and (2) their existence and survival are necessary to guard against increased industrial monopolies.

This paper is a product of the Financial Policy and Systems Division, Country Economics Department. Copies are available free from the World Bank, 1818 H Street NW, Washington DC 20433. Please contact Maria Raggambi, room N9-031, extension 61696 (53 pages with charts and tables).

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I. Introduction

1. A striking feature of the recent economic recovery in Colombia has been the remarkable expansion of private investment outlays. After having declined precipitously during the recession years of 1982-1985, total private investment, adjusted for inflation, increased at an average annual rate of 14.6 percent during 1986-1987 period and is furthermore expected to have continued its expansion in 1988, albeit, at a slower pace. The expansion has already broken past records in terms of durability and has led to re-establishing the dominant position of the private sector in the country's process of capital formation and growth (see Table 1). It has not just been associated with certain cyclical impulses, such as the upturn in business profitability in 1986 and buoyant economic growth, but also with favorable developments on the fiscal side, which are expected to have a more enduring impact. There is, thus, the expectation, if not yet the belief, that these developments may come to mark an important turning point in the course of Colombian macro-economic policy and performance and set the agenda for the medium-term economic strategy and policy.

2. The broad objective of such a strategy is to launch the economy on a path of sustained long-term growth in accordance with the developmental needs of the 1990s and in cognizance of the expected shrinkage of foreign capital inflows. The main impetus of economic growth is to come from the expansion of private investment with public investment resources gradually geared

TABLE 1, COLOMBIA : TOTAL DOMESTIC AND PRIVATE INVESTMENT, 1970-1987

	1970-79	1980	1981	1982	1983	1984	1985	1986	1987
				GROWTH RATE : PERCENT PER ANNUM					
Gross Dom. Inv.	7.41	10.88	13.23	5.33	-2.15	-5.89	-9.64	5.14	5.5
Total Pvt. Inv.	6.62	-2.07	10.11	-2.26	0.27	-10.97	-14.95	13.92	15.31
				PERCENTAGE OF GROSS DOMESTIC PRODUCT					
Gross Dom. Inv.	18.72	19.07	20.62	20.49	19.89	18.96	19.04	17.95	19.00
Total Pvt. Inv.	12.47	11.44	12.03	11.09	11.03	9.95	9.41	9.61	11.10
memorandum: Share of Pvt Sector in tot.dom. inv (%)	66.61	59.99	58.34	54.12	55.46	52.48	49.42	53.54	58.42

Source: Banco de la Republica; National Department of Statistics (DANE), and National Department of Planning (DNP).

towards social areas. The underlying logic is straight forward and is predicated on the notion that an increase in allocation of national resources towards private business investment should boost aggregate demand through the multiplier process, dampen inflation through its positive influence on aggregate output and productive capacity, and lead to enhance the overall gain in productivity and efficiency of resource use. These are highly desirable outcomes, considering inflation has reached its recent-time peak, industrial productive capacity is at its limitation, and productivity is lagging.

3. But desirability is hardly a guarantee for success. What is required is a consistent framework of policy initiative and measures designed to strengthen the underlying demand for expansion in capacity, to facilitate resource transfer to the private sector in order to meet that sector's growing financing requirements, and to influence favorably the relationship between the return on investment and the cost of capital. These measures relate at the macro level to three areas of economic policy; i.e. demand, financial and taxation. Their strength in influencing private investment in Colombia derives basically from the following observations:

a) aggregate private investment in Colombia has in the past been highly sensitive to aggregate demand, particularly internal demand conditions;

b) the corporate sector is highly leveraged and has traditionally relied on debt to finance its investment and growth;

c) the interaction between taxation and inflation has been crucial in lowering the real cost of capital to match profitability and return on investment; and

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b) the corporate sector is highly leveraged and has traditionally relied on debt to finance its investment and growth;

c) the interaction between taxation and inflation has been crucial in lowering the real cost of capital to match profitability and return on investment; and

d) the degree of government intervention in the financial markets in terms of directed credit programs has been important in influencing the evolution and structure of financial markets and the allocation of credit to firms and households.

4. These considerations set the stage for the analysis and policy discussion that follow. The analysis is divided into three parts: (i) the relationship between aggregate demand and investment; (ii) the influence of financial policy on investment; and (iii) taxation and the cost of capital. In addition, a concluding section contains the main result and policy suggestions, and an annex presents the technical and theoretical discussion for determinants of marginal cost of capital under Colombia tax code.

II. Aggregate Demand and Investment

1. Empirical Investigation

5. The basis for consideration of potential demand policy influences on private investment behavior in Colombia is the historical relationship between aggregate private investment and demand. This relationship has been very strong and robust as illustrated by estimation results of equations (1) through (7) contained in Table 2. The equations are based on an accelerator model of private investment behavior, whereby investment responds to changes in aggregate demand via changes in the desired level of capital stock. To capture the influence of supply of credit, total outstanding loan from financial institutions is also included, and several lag specifications were considered to highlight the underlying dynamics between aggregate investment and demand. Finally, aggregate demand was decomposed into domestic and external components. Estimating the model over 1971-1987 period, several important conclusions emerge:

6. First, that aggregate private investment in Colombia has been highly sensitive to domestic demand conditions. Thus, changes in domestic demand have been consistently significant and important explanation of investment variability in Colombia. For instance, one percentage point increase in the rate of growth of aggregate domestic demand leads to an increase of 2.8 percent increase in the level of real private investment in the short run, and 5.6 percent in the long run.[1] These results remain rather robust for various specification of the model.

7. Second, in contrast to domestic demand, external demand has not been an important stimulus to private investment. Statistically, aggregate real external demand does not contribute to the explanation of past behavior of private investment.[2] This, however, is not surprising given the weight of housing investment in aggregate private investment data[3] and the well-known characteristic of the business sector in Colombia which tends to be highly oriented towards internal rather than external conditions.

8. Third, considering the estimated multiple correlation coefficients of the set of equations reported in Table 2, it is evident that the model explains roughly one-half of variability of past behavior of private

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1 This is based on equation (4) in the Table, which is statistically considered as the most appropriate equation.

2 The partial correlation coefficient between changes in aggregate private investment and foreign demand is estimated over the period 1967-1987 to be -0.14, but is not statistically significant. It is to be noted, however, that such correlation, or the econometric findings presented above, provides only a partial analysis of the relationship between domestic investment and external demand. A more detailed analysis should also incorporate the balance of payments effect of the relationship between domestic investment and external demand. In that case, changes in external demand would influence domestic investment through availability and cost of imported capital goods.

3 Total household investment in residential and durable goods accounted during the period 1970-1985 for about one-third of total private investment outlays, or about 4.2 percent of GDP.

investment in Colombia. In other words, roughly one-half of investment fluctuations remain unexplained, which are attributable to other factors and presumably to the state of business confidence or "animal spirit". This then suggests for certain degree of caution in relying on a private investment-led growth strategy. The point is that such a strategy involves certain measures of risk relating principally to the unpredictability and volatility of private investment behavior, which, in Colombia, has in the past been particularly pronounced.

2. Policy Implications

9. The above empirical investigation of the aggregate relationship between private investment and demand provides a strong case for the proper management of aggregate demand. It is evident that a balanced expansion of aggregate demand, particularly domestic, is critical to the success of a private investment-led growth strategy. Without that, firms have no reasons or motives to expand capacity and hence to order new machinery and equipment. To stimulate demand, policies need to be framed within the broader macro economic context, within which the inflationary consequence of such policies are given due attention. The detailed formulation and design of such policies and their instrumentalities and mixes are beyond the scope of this paper, but, given the past trend of inflation in Colombia, which has shown a high degree of sensitivity to aggregate demand conditions, there is little doubt that expansionary policies need to be targeted to encourage investment demand, rather than consumption. In this respect an investment tax credit scheme for new investment represents a desirable option. This scheme is desirable because it helps to offset, to some degree, the adverse impact of the 1986 tax reform on the cost of capital.

10. As will be detailed below, the provision regarding the gradual elimination of deductibility of inflationary component of business interest payments will tend to increase the cost of funds to corporate borrowers; the

Table 2
Estimation Results for Relationship between
Aggregate Private Investment and Demand Components

Eq.	Constant	1/ $\Delta \ln y_t$	1/ $\Delta \ln y_{t-1}$	1/ $\Delta \ln z_t$	1/ $\Delta \ln z_{t-1}$	$\ln I_{t-1}$	$\ln L_t$	R^2	DW
(1)	2.25	2.35	1.22	-0.17	0.31	0.36	0.40	0.63	2.20
	(0.65)	(1.35)	(0.87)	(-0.40)	(0.76)	(0.90)	(1.99)		
(2)	2.29	2.61	-	-0.14	0.19	0.48	0.29	0.60	2.18
	(0.68)	(1.55)		(-0.32)	(0.50)	(1.28)	(1.88)		
(3)	2.61	2.57	-	-0.14	-	0.43	0.30	0.59	2.17
	(0.81)	(1.58)		(-0.35)		(1.24)	(2.05)		
(4)	2.09	2.84	-	-	-	0.49	0.29	0.59	2.21
	(0.76)	(2.05)				(1.61)	(2.11)		
(5)	1.06	2.75	-	-0.03	0.30	0.89	-	0.46	2,37
	(0.29)	(1.47)		(-0.07)	(0.72)	(2.69)			
(6)	1.50	2.69	-	-0.03	-	0.85	-	0.44	2.34
	(0.42)	(1.47)		(-0.08)		(2.66)			
(7)	1.38	2.76	-	-	-	0.86	-	0.44	2.35
	(0.45)	(1.77)				(3.14)			

Note: The variables are defined as: I = real aggregate private investment outlays, y = real aggregate domestic demand, z = real aggregate foreign demand, and L_t = total outstanding loans from financial institutions.

All variables are in 1975 constant prices (millions of Col.$).

t-statistics are in parentheses and the data is annual from 1971 to 1986.

1/ Δ is the difference operator; i.e., $\Delta \ln y_t = \ln y_t - \ln y_{t-1}$.

impact of such increase in the cost of funds on the overall cost of investment can be alleviated through the proposed investment tax credit scheme which works to reduce the price of new capital goods.

11. The potential for encouraging private business investment through efforts to stimulate external demand needs also to be explored. The observation that such a channel has not been statistically important in the past should not be used as evidence against consideration of its future potential. Moreover, such strategy needs to be viewed in light of its favorable balance of payment implications and greater availability of foreign exchange and hence supply of imported capital goods.

12. Finally, in considering the potential influence of domestic demand expansion on the evolution of private investment in the future, it is important to take account of the favorable trend in productivity gain that will be associated with an increased share of private investment in the country's total capital formation. To the extent that the lagging behavior of productivity growth in the past had been associated with increase in the share of public investment,[4] the substitution of private for public investment in the future will lead to reduce inflationary tendencies and hence widen the scope for expansionary demand policies. More expansionary domestic demand policies will feed into higher investment, and thereby increased supply potential and faster growth.

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4 In fact, the pattern of aggregate private investment in Colombia has, over the past two decades, mirrored that of public investment. In other words, changes in aggregate public and private investments have tended to offset each other with the consequence that total domestic investment expenditures has, in relation to GDP, remained relatively constant. Despite substantial variation in its components, total domestic investment has shown since the mid 1960s no time trend; it has hovered near 19 percent of GDP throughout this period. (The mean has been 18.9 percent, with a standard deviation around the mean of only 1.13 percent.)

III. Financial Policy and Business Investment

1. Policy Framework

13. Against this background of aggregate demand expansion, the relevant financial policy requirements for a medium-term investment strategy relate basically to two issues: (i) the availability of funds to pay for investment and (ii) the cost of capital relative to return on investment. Seen in a macro-economic perspective, these aspects of finance depend on the capacity and structure of financial markets to allocate funds to the business sector, on the extent and nature of government intervention, and on the determinants of profitability such as real wages and efficiency of capital use. But such a macro perspective needs also to be supplemented by a disaggregated view of company finance to take account of companies' specific characteristics which give rise to credit rationing and quantitative constraints. It is known, for instance, that small and medium-size firms in Colombia operate under much tighter restrictive financial environments than do large and reputable ones. For the former class of firms, it is not so much the cost of capital as it is the sheer availability of capital which is often the operating constraint on their investment behavior. These firms, in contrast to large ones, do not have realistically the option of raising fresh capital through capital markets. They are also excluded from the inter-firm market which caters exclusively to the needs of large and reputable companies. The main sources of funds, beside their own internal sources, are loans from financial

institutions and curb markets.[5] Hence, they are highly vulnerable to the impact of monetary and credit squeezes.

14. Such characteristics of company finance, coupled with consideration of several structural features of Colombia's financial markets such as segmentation, and a high degree of bias towards short-term end of maturity spectrum, provide the main rationale for the role of financial policy affecting the availability and cost of capital to influence business investment behavior. Such a role of financial policy is further reinforced once it is viewed against the understanding that the scope for policy influence on the profitability side seems rather limited. There is a strong cyclical component in pattern of profitability in Colombia, which stems from the cyclical behavior of real wages and rate of capacity utilization. Both of these factors are strongly influenced by business cycle conditions. Nominal wages in Colombia increase normally with the rate of inflation, but

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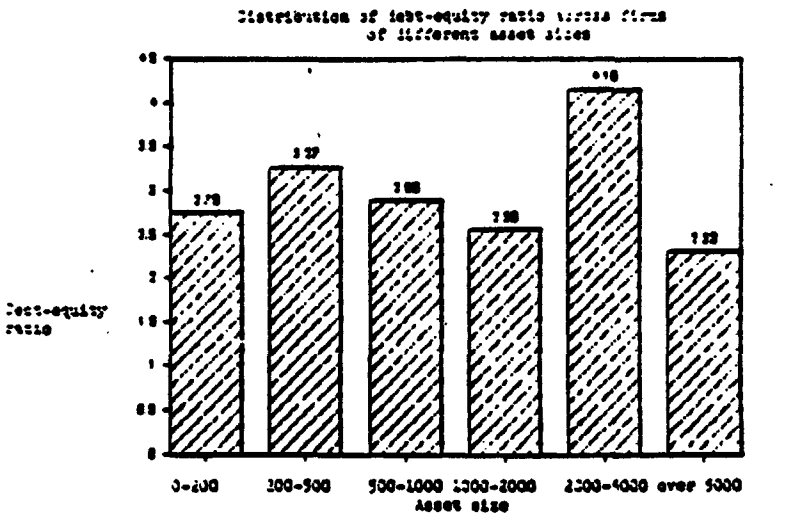
5 Interestingly, by classifying firms by asset size, it becomes evident that the very small and the very large firms are relatively less leveraged than medium-size firms (see Figure below). The very small firms (with assets less than Col.$200 million) have less debt mainly because they tend to be crowded out in the credit market, and the very large firms (with assets exceeding Col.$5000 million) resort to equity markets and have the opportunity of high internal cash generation due to their higher profitability performances.



Average of 1983-1986 period, based on data from Superintendencia de Sociedades.

the adjustment involves a one-year lag.[6] As a consequence, profits tend to increase during periods of high inflation. Also, to the extent that inflation moves pro-cyclically, profits move similarly. This means that profits are high during the upward phase of the cycle, as evident by the experience of the 1986 - 1987 period, and low during the downturn. In this sense, the extent to which policy can influence profitability depends on its success in influencing the business cycle.

15. Thus, the key to the question of how financial policy affecting the cost and availability of funds may influence business investment decisions and performances is the understanding of firms' capital structure; i.e., the ways and means by which companies finance their investment and growth.

2. Structure of Corporate Finance

a) Needs for Funds.

16. But, while concern in this respect relates to the financing of fixed investment, it is important to note that fixed investment outlays constitute only one element of the broader corporate uses of funds. In addition to using funds for purposes of fixed investment, i.e., plant, equipment, and real estate corporations need funds for holding inventories, for financing trade debtors, and for holding cash and other liquid assets, as well as for purposes of acquiring financial assets. These additional uses of funds which arise from corporations' normal operating requirements, as well as from their role as financial intermediaries, have been, indeed, quite important in the context of Colombian non-financial corporate sector. Table 3 confirms this assertion.

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6 As implied from the Modigliani-Miller Theorem (1958), under perfect capital market conditions and no taxes, firms' real investment decisions are independent of their financial structure. Under these conditions, there is no role for financial policy to influence real investment decisions. For a criticism of the Modigliani-Miller Theorem, in the context of developing countries, see Dailami (1988).

Table 3 . Colombia : Composition of Corporate Assets: Non-financial, Corporate Sector, 1980-1985
(Percentage of total Assets)

ASSETS	1980	1981	1982	1983	1984	1985	Average 1980-1985
Fixed assets	27.18	30.38	32.13	31.43	31.73	33.74	31.10
Inventories	20.73	19.25	17.90	15.45	15.28	14.45	17.18
Accts receivable	31.68	29.93	27.14	28.61	27.58	24.55	28.25
Liquid assets	6.72	7.10	6.81	6.53	7.10	5.66	6.65
Subtotal	86.31	86.66	83.99	82.02	81.69	78.40	83.18
Financial assets	13.69	13.34	16.01	17.98	18.31	21.60	16.82
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Staff estimates based on Superintendencia de Sociedades, Boletin Estadistico, various issues.

The Table uses consolidated balance sheet data, as reported by the Superintendencia de Sociedades, to provide a detailed breakdown of total corporate assets into five categories, namely, fixed assets; inventories; accounts receivable; liquid assets; and financial assets. Fixed assets have, on average, accounted, over the period 1980-1985, for about 33 percent of corporate total assets, compared with a ratio of 14 percent for inventories, 24.5 percent for accounts receivable, 5 percent for liquid assets, and, finally, 21.6 percent for financial assets.

17. In comparison with other countries, the share of fixed assets in total corporate assets in Colombia is not unusually low. It is, indeed, closely comparable to the situation in other developing countries, such as Korea, India, and Turkey, but not to the U.S. and the U.K., where the figure is significantly higher (See Table 4). In the latter two countries fixed assets seem to have accounted in recent years for over 50 percent of total corporate business assets, as compared to a ratio of between 30-40 percent in the developing countries, including Colombia. But, perhaps, more striking, in the case of Colombia, is the relatively high share of financial assets in corporate balance sheet. In 1983, for instance, financial assets accounted in aggregate for about 20 percent of total assets in the non-financial corporate in Colombia. This is about twice as high as the corresponding ratio observed in developed countries, such as the U.S.A., Japan, and the U.K. It is also higher than the corresponding figure in Korea, where the non-financial sector is known to engage in a high degree of financial intermediation.

18. Several factors account for the relatively high share of financial assets in Colombian corporate sector. First, access to subsidized credit through development funds has been an important encouragement for firms to hold financial assets and to perform financial intermediation. This reflects

Table 4: Composition of Corporate Business Assets in Selected Countries, 1983
(percentage of total assets)

	Columbia 1/	Germany 2/	India 3/	Japan 2/	Korea 4/	Turkey 5/	U.K. 2/	USA 2/	Zimbabwe 6/
1. Fixed Assets a/	32.24	32.38	41.75	27.19	39.62	34.90	41.76	61.00	55.85
2. Inventories b/	15.38	21.18	29.97	14.01	17.72	19.80	20.39	14.62	23.15
3. Accounts Receivable c/	26.02	29.99 f/	20.46	36.81	16.57	24.16	23.37	13.58	14.28
4. Liquid Assets d/	6.48	4.01	6.31	13.32	10.93	5.72	7.13	5.59	2.49
5. Other Assets e/	19.88	12.44	1.51	8.67	15.16	15.42	7.35	5.21	4.61
6. Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

a/ Net of accumulated depreciation.
b/ Work in progress and raw materials.
c/ Trade and other account receivable.
d/ Cash, bank deposits and marketable securities.
e/ Includes investments and other deposits.
f/ Includes short term bills and bonds.

Source: 1/ Superintendencia de Sociedades. Boletin Estadistico No. 6, 1983.
2/ OECD Financial Statistics Part 3, 1986.
Non Financial Corporations in Germany, Japan (total sample), U.K. (large companies in all industries) and U.S.A.
3/ Reserve Bank of India Bulletin, 1986.
4/ Bank of Korea, Financial Statement Analysis, 1983.
5/ Industrial Development Bank, 1987. Consolidated balance sheets of 185 companies.
6/ Based on the 48 listed Companies in the Zimbabwe Stock Exchange, 1988.

the fact that firms engage in financial intermediation in addition to their traditional role of producing goods and services. The exact extent and causes of such financial intermediation are difficult to establish, given the subsidiary grouping character of corporations in Colombia and a large amount of gross equity holdings. Nevertheless, one important implication is clear; financial revenues are important components of business operating income. Over the 1983-1986 period, interest incomes averaged 150 billion pesos compared to total operating income of Col$321 billion, or about 47 percent (See Table 5). This reduces sensitivity of firms' fixed investment demand towards interest rate changes.

b) Sources of Funds.

19. The corporate sector in Colombia has traditionally, at least over the past two decades, relied on debt financing, including foreign debt, to a considerable degree. Debt has increasingly become the predominant means of company finance. Total liabilities, including borrowing and trade payables, accounted in 1985, for instance, for about 80 percent of aggregate non-financial sector total liabilities, or four times as much as the total amount of shareholders' equity (see Table 6). This confirms the generally held view that the corporate sector in Colombia is highly leveraged. More alarmingly, a closer look reveals that much of corporate debt is concentrated at the short-end of the maturity spectrum; short-term liabilities accounted in 1985 for more than one-half of total liabilities, or nearly 40 percent of total assets. Of these, roughly one-third is accounted by trade payables, and the rest by short-term borrowing from financial institutions. Given the paucity of direct borrowing through bond issues, almost all of long-term liabilities are in the form of borrowing, mostly from domestic financial institutions. Total loans from domestic financial institutions to corporate

Table 5: Sources of Business 1/ Operating Income: Billions of Peso and Percentage of Total, 1983 1986

Year	Operating Profit		Interest Income		Operating Income	
	Billion Peso	Percent	Billion Peso	Percent	Billion Peso	Percent
1983	98.38	47.49	108.76	52.51	207.14	100.00
1984	140.83	53.07	124.55	46.93	265.38	100.00
1985	180.56	50.06	180.15	49.94	360 70	100.00
1986	265.24	58.33	189.49	41.67	454.72	100.00
Average	171.25	52.24	150.74	47.76	321.99	100.00

Note and Sources
1/ Refers to non-financial corporate sector as a whole.

Source: Staff estimates based on Superintendencia de Sociedades, Boletin Estadistico, various issues.

Table 6: Composition of Liability Side of Balance Sheet for Colombian Non-Financial Corporate Sector Year End 1985, Percentage of Total Assets

1.	Short Term Liabilities	37.65
	a. Trade Payables	12.18
	b. Short term borrowing	23.03
	c. Other liabilities	2.43
2.	Long Term Liabilities	34.73
	a. Bonds	0.15
	b. Long term borrowing	34.58
3.	Other Liabilities	7.91
4.	Total Liabilities	80.29
5.	Shareholders Equity	19.71
6.	Total Liabilities and Shareholders Equity	100.00

Source: Staff estimate based on data from Superintendencia de Sociedades

sector have accounted for about 40 percent of total corporate liabilities. The high degree of corporate indebtedness in Colombia is noteworthy. It is also of recent origin. Indeed, even in the early 1970s, the ratios of debt to assets were much lower, averaging 40 percent for the non-financial corporate sector.

3. Explaining The Pattern of Corporate Finance

20. What has caused corporations in Colombia to increase their indebtedness over the past two decades? In addressing this question, two factors are considered: (i) that the growth of corporate sector has generated needs for funds much in excess of its own capacity to supply internally and (ii) that government policy with regard to interest rate subsidy associated with development credit lines (fondos financieros) and taxation have considerably lowered the real effective cost of debt to corporate borrowers.

21. With regard to the first factor, the underlying premise is the basic fact that the supply of internally generated funds - retained earnings and capital consumption allowances - imposes, inevitably, a ceiling on the growth of corporate investment and assets. To see the logic of this argument, it is only necessary to understand the dynamics of asset accumulation of a purely self-financing firm, which under the Colombian tax regime is determined by two basic parameters: the rate of the firm's operating profits and its income tax rate. Accordingly, based on the assumption of a corporate profit rate of 40 percent and statutory corporate tax rate of 39 percent, which corresponds to the average of 1976-1985 period, it follows directly that the highest rate of growth in total assets that could have been achieved under a self-financing strategy (i.e. if firms paid no dividends or interest) would have been about 24.4 percent per year. In reality corporations in Colombia were paying substantial dividends and were highly leveraged and,

interestingly, grew at an average annual rate of 42 percent during that time period. In other words, if the firms had been only financed through earning retentions, they would have grown at roughly one-half of the rate that they actually did.

22. Regarding the impact of the government policy on the real effective cost of debt to corporate borrowers two observations are relevant:

23. First, loans advanced to priority sectors such as exports, agriculture, and industry are partly subsidized through rediscount facilities at the central bank. These loans which are administered by commercial and development banks are formally regulated through the operation of several development funds (Fondos Financieros). The degree of subsidization varies from fund to fund and from year to year. In 1987, for example, the combined credit extended to the business sector through these funds accounted for 19 percent of total outstanding loans of formal credit market to the business sector. The average lending rate on these loans were 31.4 percent, as compared to an average market lending rate of 41 percent.

24. Second, in addition to this particular feature of credit allocation in Colombia, there are other institutional, structural and policy factors which have worked to make debt financing cheaper than equity financing. One important factor, in this context, has been the taxation of corporate capital income in the Colombian environment of high inflation. Until the tax reform of 1986, corporations were allowed to fully deduct interest payments against their income taxes. But presumably, part of such interest payments were attributable to the inflationary component of interest rates, and in that case were, in essence, payments of the principal rather than payments for the use of debt. In this sense, the higher the rate of inflation, the higher the

servicing of principal which benefited from tax deductibility of interest expenses. Given the relatively high rate of inflation in Colombia, the magnitude of such tax-cum-inflation related reduction in the cost of borrowing has been sizeable, as will be elaborated below.

4. Directed Credit and Business Investment

a) Main Policy Issues.

25. Against this background of corporate pattern of finance and real investment in Colombia, the question of how government-directed intervention in credit allocation process may affect private business investment behavior revolves around two issues: First, how important are government credit programs in relation to the total availability of loanable funds to corporate borrowers. And second, how significant are interest rate subsidies associated with government directed credit programs in the overall cost of debt and capital to corporate borrowers. These questions need to be approached bearing in mind the various needs and policy objectives which have historically motivated the government to take an active role in the credit market. Three sets of such needs have been instrumental in Colombia: (i) to supplement the capacity of financial institutions to supply medium- and long-term capital to the industrial and agricultural sectors; (ii) to reallocate resources towards priority sectors and activities, and (iii) to deploy finance as a tool of advancing certain social/regional and political objectives. Some aspects of these needs have, of course, changed through time and the links between the original policy objectives and the specific form of credit programs have become increasingly questionable. There is, in particular, a growing concern whether the programs themselves have not been important causes of Colombia's financial market imperfection and structural imbalances.

26. There is no argument that financial intermediaries in Colombia are relatively biased towards the short-end of maturity spectrum. Signs of this "short-termism" are readily visible in many aspects of financial system, including the low maturity of banking system loan portfolio, the virtual absence of long-term debt instruments, the small size of the equity market, and the dominant share of short-term debt in corporate capital structure. The average maturity of banking system's loan portfolio is estimated for the period of 1970 - 1986 to be about 4.2 years when housing sector loans are included and to be the 2.1 when these loans are excluded.[7] In the same vein, the market capitalization of corporate equity in relation to GDP averaged in Colombia over the period of 1980 - 1986 to 3.96 percent as compared to values of 24.13 percent in Chile, 13.7 percent in Brazil, 48.6 percent in Malaysia, or an average of 31.2 percent in developed countries.

27. These are clear expressions of the degree of short-term bias in financial intermediaries. The causes of this phenomenon are several, as will be demonstrated below. But before engaging in this investigation, it is important to note that "short termism" entails real economic costs, both in terms of higher cost of intermediation brought about as a consequence of higher administrative and operational cost of financial intermediations, and in terms of failing to diversify risk. From the latter perspective, a two-year loan contract on a project with gestation period of two years, for instance, is not equivalent to a one-year loan contract which, in principle, can be rolled over. Under the second arrangement, the issuing bank has the option of rolling or not rolling at the end of the first year, and hence concentrating the risk of investment with the borrower.

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7 Based on a classification of loan portfolio of bankings systems into short, medium, and long-term, and assigning one year for short-term, three years for medium, and five years for long-term values. For the loans to the housing sector, long-term loans were assumed to have an average maximum of 12 years.

28. With regard to the causes of short-term bias of financial intermediation in Colombia, it needs to be noted that the traditional explanations of "short-termism" of financial intermediaries, which have, in the context of Latin American countries, emphasized the role of inflation, do not hold in the case of Colombia, at least not with equal force.[8]

29. Indeed, in contrast to most other Latin American countries, the rate of inflation in Colombia has not historically been very high, neither has it been highly volatile. This follows immediately from causal observation, and more formally from the econometric investigation of inflation variability in Colombia and its comparison with other countries reported in Table 7. Thus, when inflation volatility is measured by the standard deviation of the unexpected component of inflation process (i.e. inflation shock), the estimate for Colombia, based on quarterly data from 1980 to 1986, yields a value of 6.2, which is significantly lower than a corresponding value of 121.8 for Argentina, or 15.5 for Mexico. Interestingly, such a low estimate of inflation volatility in Colombia is strikingly close to that in Korea. Moreover, this similarity holds when inflation variability is measured by the estimated coefficient on lagged inflation in a first-order autoregressive scheme. These estimates are 0.63 and 0.51 respectively for Colombia and Korea.

30. The above discussion and empirical evidence, thus helps to cast doubt on the conventional belief that inflation variability has been in

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8 High and variable inflation is viewed, according to this line of argument, to increase overall uncertainty and to obscure the identification of different sources and nature of risk. For example, the conventional decomposition of risk associated with financial transactions into various components of interest rate risk, business risk, regulatory risk, is rendered meaningless when inflation exceeds a certain threshold and when its variability swaps other dimensions of risk. Under these circumstances, financial instruments tend to be overwhelmingly concentrated in the short-end of maturity spectrum

Table 7: Inflation Variability in Colombia and a Selected Number of Developing and Developed Countries

Developing Countries			Developed Countries		
	Autoregression Coefficient 1/	Inflation Shocks 2/	Autoregression Coefficient 1/		Inflation Shocks 2/
Argentina	0.98	121.80	Canada	0.79	1.90
Brazil	1.24	14.60	France	0.75	1.90
Chile	0.79	90.30	Germany	0.78	1.20
Colombia	0.63	6.20	Italy	0.82	3.40
India	0.24	7.10	Japan	0.58	4.10
Israel	0.97	56.50	Netherlands	0.67	1.90
Korea	0.51	6.90	Spain	0.80	3.20
Malaysia	0.42	3.80	Sweden	0.66	2.30
Mexico	0.84	15.50	UK	0.68	4.20
Philippines	0.18	11.50	USA	0.68	2.30
Venezuela	0.75	5.60			
Zimbabwe	0.53	5.60			
AVERAGE	0.67	28.62	AVERAGE	0.72	2.64

Notes: 1/ This is the estimated coefficient (a_1) on lagged inflation in a first-order autoregression scheme of the form, $X_t = A_0 + A_1 X_{t-1} + U_t$, where X_t is rate of inflation in CPI, and U_t is an error term. Thus, the higher the value of A_1 the higher the degree of inflation variability. In the extreme case that $A_1 = 1$, inflation follows a random walks.

2/ Inflation shock is the standard deviation of the residual of the error term in the autoregression on equation described above.

Sources: Based on data from IMF, International Financial Statistics

Colombia the cause of short-term bias of financial intermediaries. There appears no compelling evidence, at least in a comparative perspective, to link inflation volatility to short-termism phenomenon in Colombia's financial institutions. The sources and causes of the problem seem to reside somewhere else, and in particular, in three areas: (i) general uncertainties facing economic agents which are not necessarily associated with inflation; (ii) high interest rates; and (iii) discriminatory regulatory practices and wide disparities among different financial institutions with regard to reserve requirements and forced investment, which have led to impede competition and innovative efforts to offer longer-term deposit instrument and facilities. Under the first category, the broader degree of uncertainty associated with security conditions in the country and the traditional short-term orientation of macro policy in Colombia, and the lack of a clear long-term strategy and indicative planning are obvious candidates. These are mutually reenforcing while the nature of the interaction and direction of causality cannot easily be established.

b) Directed Credit: Volume and Relative Significance.

31. Table 8 puts the recent evolution of the directed credit programs in Colombia in a quantitative perspective. The table presents data on end-year (1980-1987) outstanding credit, both in volume and in relation to GDP, extended to the business and agricultural sector for the purpose of financing investment (both working capital and fixed assets) and for export expansion. Institutionally, these programs include credit extended through the Fondo Financiero Agropecuario (FFAP), the Fondo Financiero Industrial (FFI), and the Fondo Para Inversiones Privadas (FIP), all administered by the Banco de La Republica, and through the Fondo de Promocion de Exportaciones (PROEXPO), which is administered by another government agency and funded by an earmarked tax on imports. Included under the rubric of directed credit programs are also external credit lines

Table 8: Directed Credit- Recent Evolution and Relative Significance
(In Billions of Colombian Pesos and in percent)
End of Year 1980-1987

	1980	1981	1982	1983	1984	1985	1986	1987
1. Total Directed Credit	64 5	81 6	115 9	147 8	188 1	230 9	299 2	n a.
1 1. Development Credit (Fondos Financieros)	52.3	67.3	94.0	122 5	157.5	186.7	236 6	305.1
a FFI	3 9	3 8	4.8	5.9	8 6	8.3	7.9	8.7
b. FIP	3 1	3.5	5 2	7.7	7 8	7 4	8 2	9.6
c. PROEXPO	22.5	31.9	45 3	57.4	73 4	87 1	118 2	n a.
d. FFA	22.9	28.2	38.7	51 6	67.7	84 0	102.3	123.4
1.2. External Credit	12 2	14.3	21.9	25.3	30 6	44.2	62.6	n.a.
2 Total Banking System Credit	343.9	480.3	598.9	734.9	840.8	1021.3	1362.5	1843.2
3. Directed Credit/Tot. Bkg System Credit (%)	18.8	17.0	19.4	20 1	22.4	22 6	22 0	n a
4. Directed Credit/GDP (%)	4.1	4.1	4 6	4 8	4.9	4 6	4 5	n.a.
5 Directed Credit in Constant 1980 Prices	64.5	66 4	75.7	80.2	83 5	82 1	82 8	n a

Notes and Sources:

1/ Total Directed Credit=Development Credit (Fondos Financieros) plus external credit
2/ Deflated by GDP implicit price deflator

Source: Staff estimates based on data from The Banco de la Republica.

supported by the World Bank and IDB loans which have also been administered by the BR and channelled primarily through Corporaciones Financieros (CFS).[9] The outstanding volume of these credit lines amounted at the end of 1986 to Col$300 billion (4.5 percent of GDP), which accounted for 22 percent of total outstanding credit of formal financial markets. Of this amount roughly 50 percent is accounted for by the development credits (Fondos Financieros), which are financed by various forms of taxation levied on imports or on financial institutions through excessive reserve requirements or forced investment. It is, thus, this component of government credit programs which has been the subject of policy controversy and debate. The balance of this section will, hence, concentrates on two aspects of these programs: (i) their volumes, and (ii) the degree of interest rate subsidization involved.

32. Table 9 sets the tone; it describes the evolution of development credits (Fondos Financieros) from 1976 to 1978, and reveals two important facts. First, that the volume of total credit facilitated through official funds (Fondos Financieros) has increased in nominal term from Col$15.4 billion in 1976 (2.9 percent of GDP) to Col$305.1 billion (3.4 percent of GDP) in 1987. In relation to total credit market activity, however, the volume of official funds has tended to decline during this period, from an average of 24.1 percent in the second half of the 1970s to 16.5 percent in 1987. Second, more than 40 percent of total volume of official funds has been channeled to the agricultural sector through the FAA.

33. In addition to its dominant position in the total supply of development credits, the FFA is distinguished also by its high degree of

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9 The data excludes credits through the Fondo de Capitalizacion Empresarial (FCE) on the grounds that this line finances individuals purchase of company shares and, hence, is not comparable with other official credit lines such as FFAP, FFI, FIP, and PROEXPO, which are in essence debt capital, whether they originate from foreign or domestic sources.

Table 9: Outstanding Development Credits to Business Private Sector
(In Billions of Colombian Pesos and in percent)
End of Year: 1976-1987.

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
1 Development Credit (Fondos Financieros)	15.4	27.1	38 4	47 5	52 1	67 3	94 0	122 5	157.5	186 7	236 6	305.1
1a. FFA	7 5	16.6	23 7	29 5	22 9	28 2	38 7	51 6	67 7	84	102 3	123.4
2. Development Credit/GDP (%)	2.9	3.8	4.2	4 0	3 3	3 4	3 8	4 0	4 08	3.76	3 53	3.67
3 Development Credit/Tot.Institutional Credit (%)	19 0	23 1	25 9	28 6	15 2	14.0	15 7	16 7	18 73	18 28	17 37	16 55

Source: Staff estimates based on data from The Banco de la Republica

politicization, higher degree of subsidization, and its rigid interest rate structure. The administered borrowing rate on loans secured through the FFA in 1985, for instance, was 21 percent, as compared to corresponding rates of 33.8 percent and 32.3 percent applied to loans directed to industry through the FIP and FFI respectively. This favored position of agriculture relative to industry, both in terms of its higher share of directed credit allocation and higher degree of interest rate subsidization, is an interesting feature of Colombian political economy. There is also the belief that the agricultural sector has been traditionally discriminated against in other areas of macro policy, particularly trade policy. Motivated by this belief and pressed by the fact that the agricultural sector relies on credit as its primary source of finance and its virtual exclusion from the resources of capital markets, have led the agricultural community to rally its political power and to resist any changes in the status-quo. In a sense, the sector views its more favorable treatment in the finance area as a compensatory and corrective policy, balancing of the discriminatory treatment that it is subjected to in other areas of macro policy. There may be some valid justification for such a position. In any event, the fact remains that no policy reform in the areas of development credit programs can be realistically expected to succeed unless it is firmly grounded in the political economy of the agricultural sector and the peculiarities of its credit demand.[10] These peculiarities include the relatively high degree of agricultural sector in development credits and the inelastic nature of its loan demand. The outstanding credit facilitated through the FFA accounted in

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10 It is an important characteristic of agricultural finance that loan demand in that sector tends to be very inelastic. This means that higher interest rates typically lead to financial distress and bankruptcy, rather than to lower demand. The farm crisis in the U.S. in the wake of high interest rates of the 1980s provides a convincing illustration of this fact, so does the enormous political pressure exerted by the agricultural community for an interesting study of the farm crisis in the U.S. (see Calomiris, Hubbard and Stock [1986]).

1986, for instance, for 52 percent of total institutional credit extended to the agricultural sector. In contrast, the share of industry in development credits relative to its total demand for credit amounted in the same year to 5.7 percent excluding PROEXPO and 47.6 percent when PROEXPO was totally allocated to industry.[11]

34. Interest rate subsidy has been one other important aspect of directed credit programs in Colombia which has generated a great deal of policy controversy and debate. There is no doubt that the extent of interest rate subsidy has been relatively large, averaging for the period 1976 - 1978 to about 19.6 percentage (see Table 10). Recent measures, however, to link lending rates applied to development credits to DTF (a market-determined composite deposit rate), have led to reduce significantly the magnitude of such subsidy. In 1987 this has fallen to 10 percentage points for the development credits as a whole. The main reason has been the sharp increase in lending rates applied to PROEXPO and to industrial funds. It is essential that this policy direction be followed, and to the extent possible, to bring credits channeled through the FFAP under the same rule and treatment. It is also essential to lower the currently high lending rates; such efforts need to address both sides of lending rate equation, i.e., the deposit and margin rates. The official ceilings imposed on August 29, 1988, seem hardly to provide a long-term solution. They could only alleviate temporarily the pressure or interest rates. But as table 11 shows, there has not yet been any sign of downward movement in the pattern of deposit and lending rates.

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11 This is of course not valid given the fact that PROEXPO finances agricultural exports also. The exact distribution of PROEXPO funds between industry and agriculture is, however, not clear.

Table 10: INTEREST RATE SUBSIDY, 1976-1987

Year	Market Lending Rate	Development Funds	Subsidy
1976	38.1	21.0	17.1
1977	38.1	17.6	20.5
1978	36.5	17.4	19.1
1979	36.6	20.9	15.7
1980	40.2	22.7	17.5
1981	47.3	22.7	24.6
1982	47.9	22.6	25.3
1983	43.7	21.5	22.2
1984	44.7	22.6	22.1
1985	45.3	22.6	22.7
1986	41.2	22.6	18.6
1987	41.4	31.4	10.0
Average	41.8	22.1	19.6

Source: Staff estimate based and data from Banco de la Republica.

TABLE 11; COLOMBIA, RECENT CHANGES IN KEY INTEREST RATES
SELECTED PERIODS
(ANNUAL RATES IN PERCENTAGE)

Instruments	Before Ceiling			After Ceiling	
	July 15 - 22	July 25 - 29	Aug. 29 - Sep. 2	Sep. 12 - 16	Sep. 19 - 11
1. Deposit Rates (90-day CDT)					
Banks	35.0	34.9	31.5	31.6	31.3
CFs	36.5	37.0	34.0	33.4	33.4
2. Lending Rates					
Banks	47.9	43.3	39.0	39.9	39.9
CFs	45.7	45.3	45.5	43.2	42.3
CFCs	46.5	45.9	44.9	44.0	43.3
3. Government Paper (TAN CLASS A 180-day)	35.6	35.5	29.5	31.5	29.2

Source: Asociacion Bancaria de Colombia, Informe estadistico semanal, various issues.

IV. Tax Reform of 1986 and Corporate Cost of Capital

1. Introduction

35. This section analyzes the impacts of the 1986 tax reform on the real cost of capital in the nonfinancial corporate sector of the Colombian economy. The analysis concentrates on the marginal cost of capital, which refers to the rental or user cost of capital and is defined as the real cost of funds (both debt and equity), adjusted for the impact of accelerated depreciation and cost of asset decay. This yields a measure of the real cost of capital which is most relevant for the analysis of business investment incentives. To finance their new investment expenditures, firms are assumed to draw first on their internally generated sources of funds, secondly, on loans obtained from subsidized official funds, and lastly on loans secured from financial institutions. For this reason, the marginal cost of debt is measured by the market lending rate.[12] And the cost of equity is measured as the average (expost) real return on equity after making proper adjustment for inflation - induced depreciation in real the value of debt and economic depreciation of underlying capital base. This combined measure for the aggregate non-financial corporate sector is used as a basis for assessing the impact of the tax reform.

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12 This applies more realistically to large firms. For small and medium size firms, it is the informal market rate which represent their marginal cost of debt.

2. The Relevant Provisions of The 1986 Tax Reform

36. The three provisions of the tax reform of 1986, which are thought to have bearing upon the cost of capital are: (i) the gradual elimination of the deductibility of the inflationary component of interest payments; (ii) the elimination of dividend income taxes; and (iii) the reduction in the corporate income tax rate from 40 percent to 30 percent. These measures are adopted to eliminate the long-standing bias against equity financing, and thereby, to bring about a more balanced corporate capital structure. By shifting tax incentives towards equity financing, the authorities are hoping to reverse the trend in corporate leverage ratios which, as noted previously, have increased dramatically over the past two decades. But success is by no means assured, and the chief reason relates to the expected limited supply of equity capital. The supply of external equity is likely to be scarce due to companies' reluctance to issue new shares. The family-based structure of corporate ownership and the desire to maintain operating control over corporation activity, are strong forces in Colombia which operate to make company management very hesitant to resort to outside equity financing, even if relative cost considerations favor such a financing strategy. Also, the supply of internal equity is likely to be adversely affected by the elimination of dividend income taxes. Expectations that this provision of the tax reform may be reversed or changed have already prompted company shareholders to exert considerable pressure on management to increase the proportion of company earnings distributed in the form of dividend income.

37. Thus, the danger exists that the increase in the cost of capital associated with the gradual phasing out of deductibility of inflationary component of interest payments may hamper real investment activity and, hence, growth and profitability. The lower level of real investment may

reduce the overall demand for funds including also debt, but this outcome would be far from the authorities' objective of promoting substitution of equity for debt financing at a rising level of real investment.

38. Yet, one thing is certain; the gradual elimination of the inflationary component of interest expenses from corporate taxable income will help to break the linkage between inflation and the real cost of debt, which in the past has been crucially important. As it is generally known, in the presence of full tax deductibility of interest expenses, inflation directly affects the real cost of debt to corporate borrowers.[13] This happens because interest payments (in inflationary environments) are partly payments of principal. The treatment of the inflationary component of interest payments which are in the nature of capital expenditure as current expenses for tax purposes, thus confers a subsidy in the form of tax savings to equity holders. The higher the rate of inflation, the higher the value of this tax savings, and hence the lower the real cost of debt.

39. The significance of this inflation related tax shield for the period prior to the tax reform of 1986 in Colombia is demonstrated in Table 12. The calculations are based on the average lending rates on loans secured from financial institutions' own resources, which account for roughly 50 percent of total credit extended to the business sector in recent years.[14]

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13 See, for instance, Cohn and Modigliani, (1985).

14 In 1985, for instance, loans from financial institutions accounted for about 48.5% of total formal market credit extended to the non-financial business sector, See Table A.1 for more detail.

40. Table 12 shows that without the inflation tax shield, the real cost of debt would have been much higher (column 1). In 1985, for instance, the real cost of borrowing from financial institutions would have been 12.25%, as compared to the actual rate of 2.3 percent.

41. Under the tax reform of 1986, however, interest expenses are only partially deductible. The deductibility of the inflationary component of interest payments is to be gradually phased out over a ten-year period. In fact, by 1996, only real interest payments will be eligible for deduction against income taxes.[15] By that time the increase in the real cost of debt would amount to 8.1 percentage points, assuming the current inflation of 27 percent per year.

42. Of course, the cost of debt is only one component of the overall cost of capital which is relevant for investment decisions. For investment in fixed assets, i.e. plant, machinery, and equipment, the other main components of the cost of capital are: cost of equity, the acquisition price of capital, i.e., the cost of acquiring one unit of machinery and equipment, taxation, depreciation allowances, and the cost of asset decay; i.e., real depreciation in terms of wear and tear and the obsolescence of fixed assets.

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15 To formalize the scheme let the parameter "a" denote the allowable proportion of inflation which is tax deductible in a particular year, and let the real cost of debt in that year be denoted by "$\bar{r}$"; it can be shown, that, "r" is given by:

$$\bar{r} = (1-u)r-a.u.x. \qquad (1)$$

where "u" is the corporate tax rate, "r" is the real rate of interest and "x" is the rate of inflation.

It will be seen from equation (1) that when a = 1, that is, under the previous tax regime, the real cost of debt would be reduced by the full value of the inflation tax shield, i.e., u.x. But after the tax reform of 1986, "a" will gradually decline by 10% each year to reach zero in 1996. At that time, the real cost of debt will be r-(1-u)r indicating an overall increase of u.x.

Table 12 The Impact of Inflation on Real Marginal Cost of Debt (1970-1985)

Year	After Tax Real Rate of Interest (1)	Inflation Tax Shield (2)	Real Effective Rate (3)
1970			
1970	7.71	3.53	4.18
1971	9.26	3.71	5.55
1972	1.28	4.70	-3.42
1973	-3.09	7.12	-10.21
1974	0.74	10.19	-9.44
1975	9.13	9.15	-0.02
1976	7.54	10.21	-2.67
1977	4.65	11.58	-6.93
1978	12.93	6.90	6.03
1979	11.61	9.62	1.99
1980	10.95	11.02	-0.07
1981	14.82	9.12	5.70
1982	13.89	9.90	3.98
1983	14.00	8.15	5.85
1984	13.57	8.87	4.70
1985	12.24	9.96	2.28

Notes: More formally, the above columns are defined as:

(1) = (1-u)r
(2) = u*x
(3) = (1) - (2)

Where u is corporate tax rate, r is real rate of interest, nominal bank loan rate minus rate of inflation in GDP implicit price deflator; x is rate of inflation (GDP price deflator).

The procedure for incorporating the influence of these factors on the cost of capital under the Colombia tax code is described in the Annex, where a general expression for the real cost of capital for the non-financial corporate sector is derived. The Annex also contains the various assumptions underlying our estimates of real cost of capital for corporations in Colombia. The final simulation results, however, are reported here in Table 13. The Table also contains the historical estimates for 1981-1985 period to serve as the reference points to which the two alternative simulated results of 1996 are compared. The two scenarios are defined assuming (i), that the aggregate debt-capital ratio remains constant at its historically estimated value of 0.86 and (ii), that it declines by 5 percent per year. In the first scenario, the real cost of capital increases from an average value of 14.6 percent in 1981-85 period to 22.5 percent in 1996. In other words the real cost of capital increases by roughly 8 percentage points. Such an increase is somehow moderated in the second scenario by the posited reduction in the corporate debt ratio. Under this scenario, the increase in the real cost of capital amounts to 6.7 percentage points by 1996, which is still quite considerable.

Table 13 The 1986 Tax Reform and the Real Marginal Cost of Capital
(Percent per Annum)

Year	Historical Values
1981	16.4
1982	13.6
1983	16.1
1984	16.0
1985	11.1

Simulated Results

Year	Constant Debt Ratio	Changing Debt Ratio [a/]
1986	8.8	8.8
1987	14.5	14.5
1988	15.3	15.3
1989	16.6	16.7
1990	17.6	17.7
1991	18.6	18.6
1992	19.6	19.4
1993	20.5	20.1
1994	21.5	20.7
1995	22.5	21.3

[a/] Based on the assumption that aggregate corporate debt capital ratio declines by 5 percent a year, starting in 1989.

3. Concluding Remarks.

43. The authorities in Colombia have undertaken a comprehensive tax reform which contains several provisions that are often advocated for high inflation countries. This note has briefly examined the implications for real corporate cost of capital of three of the provisions contained in the tax form, i.e., (i) the gradual elimination of the deductibility of the inflationary component of interest payments, (ii) the reduction in the corporate income tax rate from 40 percent to 30 percent, and (iii) the change in depreciation allowances to a more generous scheme, (40, 40, 20 percent). The analysis is still at a preliminary stage, so the findings need to be interpreted accordingly. Bearing this in mind, the main conclusions can be summarized as follows:

i) The reform will tend to increase the real cost of capital for corporate borrowers. The increase, based on current trends in inflation and interest rates, is estimated, for the aggregate non-financial corporate sector, to be in the order of 8 percentage points by 1996. Such an increase is quite considerable and it seems inconceivable that profitability could increase to an extent as to leave investment incentives unchanged. Therefore, the likelihood exists that fixed investment will be adversely affected.

ii) The reform will be effective in breaking the linkage between inflation and the real cost of borrowing, a phenomenon which has, in the past, been directly responsible for lowering the real cost of debt and presumably for encouraging leverage financing.

iii) It is too early to see the impact of the tax reform on the development of capital markets. It is true that the primary equity market has experienced an impressive growth over the past three years. The primary shares offered by listed companies increased by 53 percent and 72 percent in 1986 and 1987, respectively (see Table 14). It is not, however, clear, whether such an increase reflects the influences of higher tax incentives for equity financing, or the sheer pressure of credit shortages, which have compelled companies to consider alternatives to bank borrowing.

Table 14 Primary Share Offering by Non-Financial Listed Companies: 1985-1987

(In Billions of Colombian Pesos & Annual Percent Change)

	In Billions of Colombian Pesos			Annual Percent Change	
	1985	1986	1987	1986/85	1987/86
1. Shares	8.71	13.34	23.03	53.09	72.66
2. Convertible Bonds	4.53	4.88	2.08	7.73	-57.48
3. Total	13.24	18.22	25.10	37.57	37.80

Source: Staff Estimate Based on Data from Comision Nacional de Valores de Colombia, Informe de Labores 1987-1988.

V. Conclusions and Policy Suggestions

44. A strong expansion in the pace of private business investment has been a remarkable feature of recent economic recovery in Colombia. The sustainability of this investment expansion is currently perceived to be critically important to the prospects for economic growth and productivity gain over the next few years. This paper (chapter) has concentrated on three areas of economic policy, demand, financial and taxation, and their potential influences on private business investment. The main result and policy suggestions are summarized below.

Demand Factors

45. On the demand side, the key requirement is the continued expansion of domestic demand to motivate firms' desire for capacity expansion. The initial condition is favorable since many firms are already operating at high capacity utilization rates. Policy, thus, needs to build upon this favorable condition by encouraging demand towards investment and away from consumption. A desirable policy option in this respect would be an investment tax credit scheme designed to lower the effective price of capital goods to the business sector.

46. Yet, business investment decisions are as much governed by current realities as driven by future expectations. And here, there is a strong case for macro stability, policy transparency, and credibility. There is no way of exaggerating the importance of a predictable environment for investment performance; business investment decisions are, by nature, forward looking, and they are often irrevisible. This means that, when faced with high uncertainty, firms respond by simply not investing or just waiting, or by investing in financial and liquid assets. In this context, policy has an

important role to play in casting light on the evolution of main economic variables, such as GDP, interest and exchange rate, and credit and monetary aggregates. Frequent forecast of these variables would tend to provide useful anchors for private sector expectations.

Cost of Capital

47. The starting point for consideration of potential policy influence on the cost of capital, and through that, on investment, is the observation that the real cost of capital in Colombia is high in real terms, even for a developing economy. The real (marginal) cost of capital to the non-financial corporate sector is currently about 16 percent. This could further increase as the gradual elimination of inflationary component of business interest payments takes its effect. Unless interest rates are reduced, the complete elimination of inflationary component of interest payments, could, by 1996, add an additional 6 percentage points to the current high levels. Such an increase, however, could be moderated by extending the period over which the tax deductibility provision is scheduled to be phased out.

48. What does this trend in the real cost of capital suggest for the role of policy? Clearly, either profitability has to be increased or other component of cost of capital has to be brought under control if investment incentives are not to be adversely affected. Three areas of policy options are considered below:

49. First, there seems limited scope for policy influence on the profitability side; there is a strong cyclical component in pattern of profitability in Colombia, which stems from the cyclical behavior of real wages and rate of capacity utilization. Thus, profitability tends to be high during the upward phase of the cycle, as evident by the experience of the

1986 - 1987 period, and low during the downturn. In this sense, the extent to which policy can influence profitability depends on its success in influencing the business cycle.

50. Second, efforts to induce corporations to substitute equity for debt financing should lead to a more balanced corporate capital structure and possibly to a lower overall cost of capital. Indeed, an important provision of 1986 tax reform, i.e., the elimination of dividend income taxes, was particularly designed to that end. This has resulted in eliminating the double taxation of capital in Colombia, and thus has helped to reduce the cost of equity financing. This may have been also partly responsible for the impressive growth of the primary equity market observed over the past three years. The primary shares offered by listed companies increased by 53 percent and 72% in 1986 and 1987 respectively. But given the very small size of the market, its rapid growth of the past three years is likely to have marginal impact on the cost of capital, or on the pattern of corporate finance. On the other hand, the elimination of dividend income taxes and the expectation that it may be reversed, prompted shareholders to exert increasing pressure on corporate management to increase the proportion of corporate earnings that is distributed in the form of dividend. As a consequence, retained earnings are adversely affected and, through that, corporations' ability to finance their investment internally.

51. Third, there is potentially some room for policy influence on the cost of capital through tax treatment of depreciation allowances. The prevailing tax code for capital consumption allowances is based on historical cost accounting system. This system tends to understate the economic value of a portion of fixed assets which is used up during the process of

production and, hence, over state taxable earnings. A shift towards a replacement cost accounting system should lead to eliminate this distortion and, furthermore, to enhance corporations' internal cash generation capacity.

52. It would, however, seem sanguine to assume that the policy measures listed above could lead to reduce the cost of capital sufficiently if concerted efforts were not undertaken to lower the prevailing high lending rates. The problem, here, has both macro and financial sector origins. Under the first category, high inflation and low savings rates are among prime candidates. Under the latter category, the source of the problem is the high cost of financial intermediation in Colombia. The current margin of around 9 percentage points, between average lending and deposit rates in the financial sector (Bancos and Corporaciones Financieros), is rather high by international standard. This is in part due to the short-term bias of financial intermediaries, which imposes a high administrative cost on financial institutions, and in part, due to the cost of financing the official funds. While these funds provide below market loans to priority sectors, they also entail costs to the financial sector, which are, in turn, passed on to corporate borrowers.

3. Availability and Allocation of Investable Funds

53. Of course, for small and medium size firms, it is not so much the cost of capital as it is the sheer availability of capital which is often the operating constraint on their investment behavior. These firms are very vulnerable to the risk of monetary and credit constraints. They are likely to be crowded out during periods of credit crunch. These characteristics of these firms, thus, suggest an important role for government intervention in the financial sector. Such an intervention, however, should, in principle, be directed to counteract any undue credit rationing imposed on them by

financial institutions. To the extent that these firms' investment and productive activity can be regarded, from a social welfare point of view, at higher value than equivalent investment by large firms, there is some justification for their preferential treatment. In the case of Colombia, there are at least two reasons that argue for such a treatment: (i) that these firms tend to be concentrated on relatively more labor-intensive activities and sectors; and (ii) that their existence and survival are necessary to guard against increased monopolistic industrial structure.

ANNEX

The Tax Reform of 1986 and the Real Cost of Capital

Derivation of the Cost of Capital

A. 1. Derivation of the Cost of Capital.

54. This annex draws on the modern theory of optimal business investment behavior to derive an equation for the cost of capital services (rental price of capital) for the non-financial corporate sector of the Colombian economy to be used as a basis to evaluating the impact of the 1986 tax reform. The cost of capital services refers to the cost of using one unit of capital for a specified period of time, i.e., one year. It depends not only on the cost of funds and the cost of asset decay, but also on the benefits of tax provisions for businesses' depreciations and for deductibility of interest expenses. Also, the determination of the cost of capital relies on the interaction between inflation and taxes. To the extent that interest payments which are deductible against corporate income taxes are in part payments of the principal, the real cost of capital is reduced. This positive aspect of inflation is, however, offset in Colombian tax regime by the historical cost base depreciation rules, which do not fully compensate the companies for higher replacement cost of capital.

55. Analytically, the derivation of the cost of capital is facilitated by focusing on the investment decision from the perspective of the equity holder. Consider then an investment in a project costing P_k at the time of acquisition. If a proportion, b, of that investment is financed through debt, and if the statutory corporate income tax rate is u, the shareholder's share of the original investment outlays, under the prevailing tax

depreciation allowances in Colombia, will be (1-zu-b) P_k, where z is the present value of depreciation allowances. For the project to be viable, this must be equal to the present value of the stream of net income; more formally,

$$P_k(1-zu-b) = \int \exp(-(\rho+\delta)t)[(1-u)qPy-((1-u)R+(1-a)ux+(\delta-x)bP_k+ uzP_k]\ dt$$

where:

q = real user cost of capital

P_k = purchase price of capital

Py = price of output, GDP price deflator

ρ = real required rate of return on equity

δ = rate of depreciation

b = target debt capital ratio

R = nominal rate of interest

and other variables are already defined.

Solving equation (A.1) for the real cost of capital, q, yields:

$$q = \frac{Pk}{Py}\left[(\rho+\delta)\frac{1-uz}{1-u} - \frac{\rho-(1-u)R+x}{1-u}b + \frac{u(1-a)x}{(1-u)}b\right]$$

56. It is apparent from equation (A.1) that the elimination of the tax deductibility of inflationary components of business interest payments will increase the real cost of capital, and that this increase is captured by the additional term.

$$\frac{u(1-a)x}{1-u}b$$

57. This term vanishes when a=1, which corresponds to the usual full deductibility of interest expenses; in that case, equation (2) takes the

familiar form [see, for instance, Bosworth (1985)]. Furthermore, when the inflationary component of interest expenses are fully phased out, i.e., when a=0, the overall increase in the real cost of capital will be equal to

$$\frac{ux}{1-4}b$$

which is independent of the interest rates and depends only on the corporate income tax rate, "u", rate of inflation, "x", and corporate debt-capital ratio, "b".

A. 2. Determination of Corporate Leverage Ratio.

58. This, however, yields only a partial view of the impact of the tax reform on the real cost of capital. A more precise view should take account of the impact of the reduction in the corporate tax rate, which works to lower the real cost of capital to corporate borrowers. To that end, it is necessary to return to equation (2) and compare its estimates under the two tax regimes, i.e., before and after 1986. There remains, however, one obstacle; there is great uncertainty as to how the firm's debt policy, i.e., their debt leverage ratio, may react to the changes introduced in the tax reform.[16] The associated increase in the real cost of debt should, in principle, discourage debt financing. Econometric analysis of past determinants of corporate leverage ratio in Colombia, does not support this

16 In a broader perspective, this uncertainty about the impact of tax changes on corporate debt leverage ratio reflects the more fundamental uncertainty about the determinants of corporate financial structure. Questions concerning firms decisions as to how much to draw on retained earnings to finance their investment expenditures and how much to raise externally, through debt or equity, or what portion of their earnings to distribute as dividends and what portion to re-invest, have, unfortunately, still remained unsettled even in the context of industrial countries and even in theory. Anomalies, paradoxes, and puzzles are more often used to describe the state of knowledge, than rigorous understandings. See, for instance, Black (1976), Myers (1984), and Mayer (1988) for a critical assessment of the state of the art.

assertion, however.[17] Indeed, as apparent from the estimated equations reported in Table A.1., the results indicate that the corporate sector in Colombia seems to have followed a constant, desired, or targeted, debt-capital ratio strategy with some adjustment lags involved. Such a desired debt-capital ratio can be extracted from equation (3.2) to yield an estimate of 0.86, which appears consistent with the historical pattern of corporate finance in Colombia.

17 In addition, given the prevailing wide differential between interest rates and loans secured through official funds, which are re-discountable at the Central Bank, and loans obtained from financial institutions (own resources), the higher overall cost of debt could shift demand towards official funds. This, in conjunction with government policy of gradually raising rates on the resources of official funds is likely to put increasing pressure on lending rates.

Table A.1.: Regression Results for Determinants of Aggregate Debt-Capital Ratio in the Non-Financial Corporate Sector; Annual Data, 1970-1985.

(A2.1) $d_t = 0.254 - 0.007r_t + 0.724d_{t-1}$
(2.2) (1.2) (4.3)
$R^2 = 0.60$

(A2.2) $d_t = 0.237 + 0.239y_t + 0.728d_{t-1}$
(2.2) (1.6) (4.3)
$R^2 = 0.63$

(A2.3) $d_t = 0.224 - 0.003r_t + 1.91y_t + 0.741d_{t-1}$
(2.0) (0.5) (1.1) (4.3)
$R_2 = 0.64$

(A2.4) $d_t = 0.268 - 0.005R_t + 2.396(u_tx_t) + 0.621d_{t-1}$
(2.6) (0.5) (1.2) (1.7)
$R^2 = 0.61$

t- ratios are in parentheses.

Notes and Notation; The variables are defined as follows:

d_t = aggregate debt-capital ratio, where debt is measured as total outstanding loans from financial institutions, including resources facilitated through official funds, to the NF corporate sector; and capital is measured as sum of total fixed assets and inventories.

r_t = real rate of interest, bank lending rate minus rate of inflation (GDP)

y_t = deviation of real GDP from its linear time trend.

R = nominal bank lending rate.

u_tx_t = inflation tax shield.

A. 3. Parameter Estimates and Assumptions.

59. The remaining variables were estimated or assumed as follows:

(i) ρ, the real required return on equity taken to be 9.3 percent which is the average over the 1970-85 period of real return on equity after making adjustments for inflation-induced depreciation in the real value of debt and economic depreciation in underlying capital base.

(ii) δ, economic depreciation, assumed to be 5 percent.

(iii) z, the present value of depreciation allowances was estimated to be 0.231 and 0.579 for the pre- and post-tax reform period respectively.

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